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the cap is lowered, and finally shut, and on lowering the weight the cap is raised quite up, or held at any intermediate height.

Fig. 9 is a section of the neck between the bars *d* and *e*.

Fig. 10 a top view of the bar *d*, showing the hole through which the spindle passes; *k*, fig. 8, is a similar iron bar across the cap *a a*.

The chain *f* should be attached quite close to the bar *c c*, to lessen its tendency to lean on one side.

XVI.—IMPROVED CAT-BLOCK.

The SILVER VULCAN MEDAL *was this Session presented to Mr.* J. BOTHWAY, R. N. *for his* IMPROVED CAT-BLOCK; *a model of which has been placed in the Society's Repository.*

13, Clowance-street, Devonport,
December 16, 1826.

SIR;

I REQUEST that you will lay before the Society for the encouragement of Arts, Manufactures, and Commerce, the accompanying model of an improved metal cat-block, for the use of the royal navy, and for merchants' service, which I have had the satisfaction of inventing, and which, under the sanction of the Public Boards, has already been introduced into several of His Majesty's ships, with every prospect of its proving so eminently useful, as to receive universal adoption.

In the course of a long period of service in the royal navy, having observed how many valuable seamen have been lost overboard, when getting under weigh in a fresh gale, in consequence of the unwieldy bulk of the old cat-blocks, I have for several years been labouring to produce something that should obviate this evil; and I trust the invention I have now the honour of submitting, will fully realize the expectations that are formed of it, not only by myself, but also by every experienced officer before whom the block has been exhibited.

The following are the advantages which my block possesses over that which is now generally in use.

In all large class ships in the royal navy, when applying the usual cat-block, the unwieldy nature of the machine requires, that two men be sent out on the anchor, a most perilous service in rough weather, whereas mine only requires one man at any time, because he has not to sustain the whole weight of the block, as in the former case, but only that of the hook. And in vessels smaller than line-of-battle ships, in blowing weather, when the ship pitches heavily, the anchor may be hooked without the man going on it, by his standing on the head, and guiding the hook of the block to the anchor by a staff and hook, similar to a boat-hook; this facility is gained by the mobility of the swivel in its socket, so that the man has not the weight of the block to turn in order to insert the hook in the ring of the anchor. Should the anchor be hooked in the dark or otherwise by a turn in the fall, the hook being on a swivel and joint, will come out before the strain comes on the block; and when the anchor is foul, it can also be hooked with great facility.

In my thirty-two years' service, I have seen the wooden cat-blocks swell so much in cold climates, that the sheaves have become immoveable; mine, being of metal, are not liable to this inconvenience.

In point of strength and capability to bear a sudden jerk, they have been well tried in the Royal Dock Yard, at this port.

The metal blocks being of far less bulk, are considered even lighter than the wooden ones, with their iron bindings, capable of the same service; for example, take the metal block of the Warspite, the only line-of-battle-ship I have fitted; the wooden cat-block weighed 3 *cwt.* 2 *qrs.* 5 *lbs.*, whereas the metal one weighs 3 *cwt.* 1 *qr.* 26 *lbs.*, and this latter is large enough for our first-rates.

Another great advantage may be derived from this invention, namely, that the same block may be applied to other uses, whereas the old ones cannot; for instance, by merely having a spare socket or two fitted with hooks of various sizes, it may take a strap for gear blocks; or it may be converted into a lashing block, without the hook and socket, but with the socket bolt.

The two models herewith sent, namely, the metal block on my principle, and the wooden block, are made on a scale of three inches to a foot, for a large class frigate.

I have had the honour of fitting the following ships in the royal navy with these blocks, viz. Warspite, Druid, Success, Harlequin, Bustard, and Trinculo, all of which, except the latter, that has been recently fitted for the Irish station, are gone on foreign service.

I have only further to state, that I am ambitious of some mark of approbation from the Society, whose liberality has already been experienced by me on a former occasion.

I am, Sir,

A. Aikin, Esq. &c. &c. &c.
Secretary, &c. &c. J. Bothway,
Royal Navy.

TESTIMONIALS IN FAVOUR OF THE IMPROVED CAT-BLOCK.

April 27, 1827.

We, the undersigned officers, do hereby certify that we were present on the trial of the strength of a metal cat-block invented by J. Bothway, R.N. in December, 1825, in his Majesty's Royal Dock-yard, Plymouth. The above block was made suitable for a sloop of war; an anchor of two tons was hoisted up by it to a crane, the runner was stoppered, and the parts of the fall overhauled; the stopper then cut so as to enable the anchor to come down with a heavy surge clear from the ground. The block was afterwards examined by the officers, and was found quite perfect; the honourable commissioners of the navy then ordered it to be supplied to His Majesty's sloop Success.

(Signed)

J. JACKSON,
Master Attendant.

N. B.—The temporary absence of the other master attendant prevented the obtaining of his signature for the present.

SIR; Devonport, April 16, 1827.

Having used and experienced the invention of your cat-block, I am fully convinced it is the most superior article that has ever yet been invented, especially for large ships, where the block cannot be handled without great strength and danger of men's lives when standing on the anchor in a sea way; not only this, but the purchase is greatly improved by the hinge being attached above the swivel, which makes the block work fair to the sheaves in the cat-head, and I would strongly recommend it to owners and masters commanding large ships.

I am, Sir,
&c. &c. &c.

Mr. Joseph Bothway. (Signed) JAMES FRY,
Commanding the Brig Amelia.

SIR; Devonport, April 30, 1827.

I have much pleasure in acknowledging to you the report which the master of the brig Amelia has made on your much improved cat-block, which I had on your principle, and from its peculiar construction, I think it has a great advantage over the common cat-block.

I am happy to say that the master is very much pleased with it, and would recommend it for its great utility and safety.

I am, Sir,
&c. &c. &c.

Mr. Joseph Bothway. SAMUEL FRY,
Ship Owner.

Reference to the Engraving.—Plate VI.

Figs. 11 and 12 are a side and front view of the block. The bolt *a* passes through three rings or eyes, one at each end, and one in the middle of the frame, that contains the sheaves; the swivel-pipe *b* hangs loose upon the bolt, so that it has a free motion backwards and forwards; the middle of the swivel-pipe bends down, forming a socket, which supports the swivel-head *c* of the hook *e*.

Figs. 13 and 14 are a top view and section of the swivel-pipe.

In order to fit the block for the other uses alluded to in Mr. Bothway's letter, the bolt *a* is to be withdrawn, and the swivel-pipe with its hook removed, and in their place is to be inserted the looped pipe, fig. 15.

XVII.—REVOLVING LIGHTS FOR STEAM-BOATS.

The LARGE SILVER MEDAL *was this Session presented to* JOHN HAWKS, *Esq. Upper Thames-street, for his* REVOLVING LIGHT FOR STEAM-BOATS, *a Model of which has been placed in the Society's Repository.*

Duck's-foot-lane, Upper Thames-street, London,
SIR; June 7, 1826.

THE fatal accident which occurred to the passengers and crew of the Comet steam-packet, although generally deplored, seems still not to have excited the ingenuity of the public, or to have been passed by, like all other calamities, without a remedy. The cause of that accident was certainly attributable either to having no light at all, or so placed as not to be sufficiently discernible.

Within a short time of that accident, I invented a revolving light, which I think, if brought into use, would prevent the chance of a similar calamity; but, like all others who may have thought on the subject, have not yet made it public, from having been very much engaged.

I have shown the model to some scientific and ingenious friends, who have requested me to make it public, through the Society of Arts, &c. &c., and have therefore to request that you will do me the favour to lay the same before the earliest possible committee, in order that, if it shall